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# Proceedings of the Redfish Zonal Assessment

## October 14-16, 1997

## Moncton New Brunswick

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Canada

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## Abstract

The zonal redfish assessments were held in Moncton from October 14th to 16th, for stocks in Units 1, 2, and 3, as well as Division 3O. Representatives from DFO for the three Atlantic Regions, from the redfish Industry, and from the FRCC, all participated in assessing the status of the four stocks. A report on the status of these stocks was prepared at the end of the meeting.

## Résumé

Le processus zonal de revue des évaluations des stocks de sébaste des Unités 1, 2 et 3, ainsi que la la Division 3O s'est déroulé à Moncton du 14 au 16 octobre 1997. Des membres des trois régions atlantiques du MPO, des représentants de l'Industrie de la pêche au sébaste, ainsi que du CCRH ont participé à cette réunion où l'état de quatre stocks de sébaste a été revu. Un rapport conjoint sur l'état des stocks à été préparé à la fin de la réunion.

# Proceedings

# Redfish Zonal Assessment

# October 14-16, Moncton New Brunswick

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The zonal advisory process (ZAP) on the Northwest Atlantic Stocks of redfish was held in Moncton, New Brunswick from October 14 to 16 1997. The objective of the meeting was to review the assessments of Redfish in Units 1, 2, and 3 and in NAFO[1] Division 3O, and to prepare a stock status report for all four redfish stocks. The agenda for the meeting is given in 0. Attendees to the meeting are listed in 0.

[1] North Atlantic Fisheries Organisation.

# 1. Introduction

The chairperson welcomed the participants to the meeting. A brief introductory statement was made to describe the operation and the objectives of the meeting. Participants were also informed about the privileged nature of the meeting discussions until the SSR[1] was released. Finally, the agenda was reviewed and approved. Three items were added:

1. The future of the redfish Zonal advisory Process [ZAP]. [RH[2]]
2. The future of redfish assessment (re: High priority project on redfish). [RH]
3. Future of industry surveys [RIS] and the implication of the Groundfish Enterprise Allocation Council [GEAC]. [DB]

With these modifications, the agenda was adopted and the working group proceeded with the review of the 4 redfish stocks.

In the following proceedings, summaries of the four stock assessments are provided. These summaries include the main conclusions, in bullet form, from which the SSRs will be drafted. The summaries are then followed by the details of the discussions. These are not *verbatim* transcriptions, but detailed summaries of the discussions.

# 2. Reviews of Assessments

## *2.1. Unit 1 Redfish (NAFO Divisions 3Pn4Vn [Jan.-May] 4RST)*

**Presenter: Bernard Morin**

There is no directed fishery currently on Unit 1 redfish and catches (bycatches in turbot and cod sentinel fishery) are minimal. The assessment is thus based primarily on the result of a research survey conducted every year on board the RV[3] Alfred Needler during August and September. Some data from the cod sentinel fishery (started in 1994) were also available.

The working group concluded:

1. The current assessment is consistent with the assessments of previous years.
2. The biomass remains at a very low level, and even if the survey index increased between 1996 and 1997, that the increase is probably not significant both statistically and biologically.
3. There are still no signs of recruitment, all the new year classes observed since 1988 being of very low abundance.
4. No significant recovery of this stock is expected for at least 8 to 10 years, and perhaps more: when a significant year class is produced, it will not recruit to the fishery for a further 8 or 9 years.
5. Industry commented that fish appear to remain in the Gulf for shorter period in recent years (inward migration later and outward migrating earlier). This may be biasing downward the results of the current survey and there is a need to gather more information on this stock.

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1 Stock Status Report
2 See Appendix 0
3 Research Vessel

2.1.1. Transcription of the discussion

[DB] There is 8 t of catches; where do they come from? **[ANSWER]** — Bycatches in the cod sentinel survey and in the turbot fishery.

[IB] Dates of the survey. Has it been always at the same time (Aug. Sept)? **[ANSWER]** — Yes.

[DB] Winter survey? We miss information on winter distribution. Moncton [Maritimes region] had a survey in this area.

[RB] The assessment is consistent with the previous assessments.

[DB] Nobody talks of the presence of fish in any numbers here. There are no fish.

[PD] The low period in the fishery was in 1976; when it went up, it was certainly not due to the 1980 year-class. **[ANSWER]** — There was a year class present in the population then (1970) that was responsible of the stock rebuilding in the early 1980s.

[DB] Has the stock reached now a level where it cannot reproduce? **[ANSWER]** — [RB] We do not know; it involves the stock recruitment concept. It is certainly a frightening perspective. [BM] Temperature was perhaps also involved in the absence of recruitment.

[DB] The disappearance of the 1988 year-class; was it related to temperature?

[IB] We certainly did not catch it! They were too small. We saw few in the first years, and then nothing.

In the past we saw lots of small fish. They were in separate areas from the larger fish until they reached 5 inches. At 6 to 8 inches they would mix with the other and you [the fishery] would get into trouble.

Fish in the 1970's used to be present all year round in the Gulf of Saint Lawrence, but their date of appearance started to happen later and later and the date of their disappearance occurred earlier and earlier until 1994 [when the fishery closed].

[RH] Interesting information. Redfish are now distributed at the mouth of the Gulf. In the past they were more widely distributed. The [cod] sentinel surveys in July have higher catch rates [of redfish] in the summer and fish are more widespread. If migration occurs earlier, then this may be accentuating the trend in the RV survey index. This really begs the question of stock structure.

[DG] If migrations drive the abundance trends, then the actual management units may not be appropriate.

[IB] In 1978-1979 Madelipêche was getting 2¢ more [*i.e.* subsidies] to fish outside the Gulf. But there were no fish then at the mouth of the Gulf,

[PD] The two stocks [Unit 1 and 2] were never healthy at the same time.

Cod sentinel surveys

[DP/RB] Restriction cables were introduced in 1997 in the cod sentinel surveys. Were there any adjustment made. **[ANSWER]** — Yes, catches were adjusted with the ratios of horizontal opening that were measure with and without restriction cables using Scanmar.

[DP] There are big differences between July and October-November. **[ANSWER]** — [DG] Best catch rates in the summer using bottom trawls, best catch rates in winter using midwater trawls. There is probably a "vertical" effect in the differences in CPUE between the two sentinel surveys.

[RB] When you compare summer and fall [sentinel] surveys, the same strata are dominant in both even if catch rates are much lower in October-November.

[RH] Distribution maps. The population appears to be more distributed toward the mouth of the Gulf. There is a seasonality in the vertical movements. There are two factors that can explain changes in redfish abundance:

Horizontal: in and out the Gulf, and
Vertical, in fall toward midwater.

[DB] The Industry used bottom trawl until September, then switch to mid water trawl until the following May. During the [cod] sentinel fisheries in November, the fish may be there but in midwater.

[BM] The old CPUE series only included bottom trawls from May to October-November.

[IB] The small trawlers could not fish there.

[BB] Strata at the mouth of the GSL have reduced by ½ to ¼ whereas the reduction is $^{1}/_{10}$ elsewhere. Most of the reduction occurs in the central Gulf and in the North.

[RH] The length frequencies from the survey appear to be more similar to those from the November [cod] sentinel surveys than it is to the July sentinel survey. This is consistent with the idea that the Needler survey is becoming more and more a fall survey.

[DB] There are concerns in Industry that the survey is currently the only source of information on this stock, and steps should be taken in the future to correct that.

[DP] The best time to conduct the survey is the summer.

[DB] Industry will agree that things are relatively constant from year to year then. Things are more variable during the migration.

### *2.2. Unit 2 Redfish (NAFO Divisions 3Pn4Vn[June-Dec.]3Ps4Vs4Wfg)*

**Presenter: Don Power**

The results of this assessment of Unit 2 redfish are consistent with the assessment of the last two years. The 1997 fishery took place mostly in the first half of the year, and about ¼ of the catch was taken in unit area 3Psd, adjacent to sub-Division 3Pn. Preliminary 1997 data from Scotia Fundy suggest the 1997 catch rate was a slight increase over 1996, confirming reports from Industry that the fishery had been as good or better than 1996. However, the most apparent feature of the catch rate series (also visible in the series from Unit 1) is a large peak, centered around 1991, of 3 to 4 years in duration, when catch rates nearly doubled during that brief period. No complete explanation of this event can be provided. The increase was attributed in part to technological changes (introduction of more efficient midwater trawls) and the recruitment to the fishery of the 1980 year-class. The following decline is more difficult to rationalise. Industry confirmed that the technological advances of the late 80's were not abandoned; the decline then

implying a massive, and sudden decline in biomass which was not considered plausible, given the stability in surveys and redfish biology. It was concluded that the catch rate series did not reflect recent trend in abundance for Unit 2 redfish. It was therefore decided to present in the SSR, the series in the section "description of the fishery", as it relates to the experience of Industry, but not to consider it as an index of abundance.

Several research vessel surveys are available. The longer time series come from the regular groundfish surveys from Newfoundland and Maritime regions, but since these are general groundfish surveys which survey areas defined for cod and haddock primarily, they do not cover the whole of Unit 2 redfish stock area (and depth range for Maritimes region surveys). A new survey (starting in 1994) conducted by Newfoundland Region covers the whole area. The time series is short, and the index of abundance is stable during that period. Three year-classes are clearly visible in the population: fish above 30 cm representing the 1980 year-class (plus older fish), fish in the 24-28 cm range representing the 1988 year-class, and a small mode at 11-13 cm representing the 1994 year-class[1]. Some concern were express in 1996 about the fast decline in number of the 1988 year-class between 1995 and 1996, but the decline did not continue in 1997, confirming our statement in the 1996 SSR that this should not considered a repetition of what had happen in Unit 1 earlier.

Conclusions:

1. The commercial catch rates are greatly affected by factors others than stock abundance (change in efficiency of the fishing fleet and in the management regime) and thus cannot be considered a reliable index of the abundance of the stock.
2. The Unit 2 redfish survey is the only reliable index of abundance of this stock available:
   - It indicates that biomass was stable over the four year time series;
   - Length frequencies show two "year-classes" (1980 & older, and 1988) to be present in abundance, which is consistent with results of previous years.
   - There is a small year-class (1994) which is source of prudent optimism for the future.
3. The exploitation rate implied by the current TAC[2] (10 000 t) will be estimated as the ratio of TAC over survey exploitable biomass. It is recognised that this calculation will result in an overestimation of the real exploitation rate, and this will be duly noted in the SSR.
4. Because the survey is conducted with the Campelen shrimp trawl, the survey biomass will overestimate the exploitable biomass: this is especially important since the large 1988 year-class is only partially exploited and its total inclusion in exploitable biomass would severely overestimate it. It was therefore decided to apply, as last year, maturity ogives (from the commercial fishery) to the catch at length and to estimate the exploitable biomass.
5. The other survey data, which have numerous limitations for assessing Unit 2 redfish, do nonetheless show trends in abundance and size composition that are compatible with the main survey.

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[1] There was a long discussion on the "ageing" of redfish length modes for this stock, as well as for Unit 3 using growth models from the Americans. It was concluded that the mode observed in the surveys first at 8 cm in 1996, and at 12 cm in 1997 would be comprised of fish aged 1+ and 2+ respectively, or at the most 2+ or 3+ respectively. Hence this mode would represent fish born in 1995, or 1994 at the earliest. The evidence seem to favour slightly the faster growth, but to remain consistent with the "ageing" of the 1988 year-class, it was decided to call it the 1994 year-class.

[2] Total Allowable Catch (*français: Total Admissible des captures*)

2.2.1. Transcription of the discussion

Catches:

[DB] The fishery takes place more in 3Ps in the early part of the year (the first 4 months). The small fish protocol resulted in a shift from 4Vs to 3Ps. There was a closure until July 1 [From the 1997 management plan we have the following: 3Pn/4Vn closed January to June inclusive and November to December inclusive; 3Ps/4Vs/4Wfgj closed May to June inclusive]. Also, because of dual gear regulations, we needed observers in 4Vs, which made it more expensive to fish. Finally, there were market reasons: the market for redfish is better before Easter.

[DB] From what I heard, the 1997 fishery was very similar to the 1996 fishery. The catch rates were better.

[KL] We had much better catch rates in 4Vn. The Sea Freez boat had better catch rates. In 1996, we find the way to conduct the fishery [given the new management rules put in to place in previous years] and we conducted it as such in 1997.

Catch rates:

The catch rates have been affected so much by technological changes and changes in regulation that make them very hard to interpret. However, the general feeling was that the catch rates were better in 1997 in relation to what they were in 1996. The dominant feature in the catch rate series in recent years is a brief, but major peak that occurred between 1988 and 1992. Since then, catch rates have returned to their previous levels. This peak has been attributed to the combination of the recruitment of the 1980 year-class and rapid technological changes in the industry.

[RB] We want to look at catch rates under a constant regime.

[RH] If the peak in catch rates observed in the early 1990's cannot be given credence [in terms of stock abundance], then the events that followed it cannot either.

[DB] Industry prefers midwater trawls. Now the [midwater] trawls can be sized to any vessel size, and every one can now fish using midwater trawls. It is not restricted only to the large vessels.

[TC] If the increase is technological, then the following decreased can be only stock or management related, since we don't expect Industry to revert to past, less efficient technology.

After a long discussion, the working group concluded:

- The catch rates don't reflect the abundance of redfish (at least in recent years)
- Technological changes resulted in important increases in catch rates, whereas management changes also affected them, probably in the opposite direction.
- We really cannot interpret them in term of stock abundance.
- For the presentation in the SSR, it was recommended to remove the 1997 point (which is based on a partial year of data) and to present them as a result of the fishery (in the **Description of the fishery** section) for information only.

***Recommendation: It was recommended to look at the catch rate series in a more disaggregated manner as to reflect more the experience of Industry.***

Surveys:

The current survey was started in 1994 and covers the whole of Unit 2, except the part of 4Wfgj west of "The Gully" area near Sable Island. The surveys extend partially in Division 3O. It is conducted on the RV Teleost using the Campelen shrimp trawl. Prior to that, general groundfish surveys from Newfoundland region (NAFO Division 3Ps) and Maritimes region (NAFO Divisions 4VWX) are available, but they are conducted at different times of year, using different vessel/gear combinations. Individually, each survey does not cover the whole stock area, and in the case of the 4VWX survey, it does not cover the whole depth range of the stock.

[DB] It is hard to tell, but the 1993/1994 year-class [referring to the figure of length frequency from RV surveys where a small peak can be seen at 8-12 cm] appears much smaller than others.

[RB] The modes in 4VsW surveys [referring to the length frequency figure] are hard to reconcile with the growth of redfish. This is perhaps due to the fact that we are dealing with small catches.

[BB] The small fish don't show up in the west despite the fact that the same gear/same boat were used. Is it due to a difference in the biology of redfish?

[RB] The report should be based primarily on the current survey, which shows that a) abundance is stable over its four year duration; b) the length frequency is consistent with that of the 1996 survey; and c) there is a bit of optimism because of the presence the 1994 year class.

We should then follow up by describing the other surveys, and stating their limitations. However, they appear to be consistent with the current Unit 2 survey both for abundance and size composition.

[TC] The 3Ps survey seems to be moving in a downward trend [on the time scale of the whole series]. The same seems to occur in 4VW. Is there a contradiction in the trends in the unit 2 surveys and the other 2. **[ANSWER]** — No, if you just look at the recent period.

### *2.3. Unit 3 Redfish (NAFO Divisions 4WdehklX)*

**Presenter: Bob Branton**

In Unit 3, the fishery has been under TAC regulation since the redefinition of the redfish management units. Recently, catches have increased to about 5,000 t, roughly half the 10,000 t TAC. Smaller vessels have gradually replaced the large vessels, and they account now for most of the catch. A large proportion of the catch comes from the bassins on top the Scotian Shelf. In Unit 3, landings are characterised by a higher proportion of undersized fishes (<8" or 9", depending of the ability of the fish processing plants) than in other management areas.

Commercial catch rates are not considered an reliable index of abundance of redfish given the many changes that have taken place in the fishery. The research survey started in 1970, but does not cover the deep waters (>200 fathoms) at the edge of the Scotian Shelf. Additional strata were

added in 1995 in the deep waters. The survey time series used did not include those additional strata, because of its short duration. As expected, the size composition in deeper water is different from that of the shallower areas, fish being generally larger in these deep strata. Because these strata are small, they do not contribute much to the total biomass estimates from Unit 3, even if redfish densities can be quite high in those areas. The biomass estimates from the surveys are quite variable, without discernible trends. However, in recent years, there are indication of increased recruitment, made up of several year-classes which have been responsible for the increase in survey biomass. These year-classes are more difficult to follow over time than similar recruiting year-classes in Unit 1 or 2.

Conclusions:

1. The research surveys indicate that the biomass has been relatively stable, and that the fishery has probably a limited impact on the stock.
2. There are indications of improved recruitment, although it is impossible for the time being to evaluate the future contribution of this recruitment to the fishable biomass.
3. The exploitation rate implied by the current TAC (10 000 t) will be estimated as the ratio of TAC over survey exploitable biomass. It is recognised that this calculation will result in an overestimation of the real exploitation rate, and this will be duly noted in the SSR.
4. Because the survey is conducted with a groundfish trawl (Western IIA), which is not thought to have a selectivity very different from the commercial fleet (even if the cod end is lined with small mesh), it was considered that the survey biomass was a reasonable approximation of exploitable biomass, and that no adjustments for gear selectivity were necessary.
5. Exploitation rate is low, and catches up to the current TAC (10,000 t) are unlikely to exceed $F_{0.1}$.

### 2.3.1. Transcription of the discussion

Catches:

Catches in Unit 3 are now dominated by trawlers < 65 feet in length. The peak in landings occur early in the year. As of October 18, the catch was 5,300 t. The Temporary replacement vessel program has resulted in the catch being taken mostly by small boats. The 65-100 feet vessels are not fishing. The >100 feet vessels are still participating in the fishery, but their contribution is not important. In the offshore areas, there are lots of conflicts with fixed gears, and large vessels cannot operate there; the smaller trawlers on the other hand can.

[DB] Before the "Bowtie" closure went into effect in 1993 and 1994, there was lots of small redfish taken in that area for lobster bait. The closure has eliminated the directed fishery for small redfish for lobster bait. Fish frames[1] are better and cheaper for use as bait.

The small fish problem was controlled commercially in Pubnico in 1997. Fish were of acceptable size at the beginning of the season, but the percentage of small fish (*i.e.* less than 8 inches, the smallest size that the filleting machine could handle) increased with time, and had they continued, it would have become a waste. It seems to be less of a concern now that the fishery does not concentrate on small fish.

[1] Fish carcasses after the fillets have been removed in the processing plants.

The ITQ's[1], introduced in 1995, have [monetary] value (especially if you have to buy the quota) and fishers want to make the best of it. Small fish have no value and they will avoid to catch them (in redfish fishery, the catch is not individually handled on deck, hence smaller crews, and there are no discards.)

Sea Freez grades everything in 5 size categories, and the data are available to help estimate the small fish problem.

The small fish protocol is not enforced. Had it been, the fishery would have shut down. Also, when a seasonally closed area is open, the initial effort is very high (*i.e.* the "Bowtie").

[KL] The fishery in 4W is more restrictive in than in 4X [because of the closure of the 4VsW cod fishery]. There are no discarding of small redfish, or highgrading: this is not practical. We also make short tows to avoid excess bycatches.

[RH] To sum it up, a) the 1997 samples don't represent all the small fish caught in the season as it goes up towards the end, b) the enforcement of the small fish protocol was non-existent, and c) the "Bowtie" does not represent the "best" distribution of small redfish.

[KL] Bycatches: 10% of bycatches by weight are allowed, and 15% maximum of undersize fish by number. Very small numbers can closed down the fishery. Bycatch of pollock is no problem as it is under quota.

Surveys:

[BB] The modes appears to be there, but they don't show up every years. It is difficult to pick up the modes, but their position is consistent with the growth patterns that are estimated by the Americans. The 1991/1992 year class is more abundant and is contributing to the general increase in biomass. Finally, we should not accept the 1997 point [biomass estimate from the surveys, which is much higher than previous values] as indicating a doubling of biomass between 1996 and 1997.

[KL] The basic area that we [the fishery] concentrate is 4W. The areas that remained for several years have good catch rates. Areas that have been fished, remain fished out for a while. The fish don't appear to move very much,

### *2.4. Division 3O Redfish*

**Presenter: Don Power**

The data available from Division 3O are limited. Until recently, the redfish fishery was dominated by foreign fleets and catch and catch rate data are considered unreliable. In recent years, Canadian vessels have shown greater interest in 3O redfish, which had always been considered difficult to fish, given the topography of the area. Most of the Canadian catch is taken in the last quarter of the year.

Two research survey are available from Div 3O. The first one conducted in the spring, shows a systematic increase (more than 10 fold) in abundance from 1990 to 1996, with a sudden decline

[1] Individual Transferable Quotas.

in abundance (to the pre-1991 level) in 1997. On the other hand, the fall survey indicates relative stability over the same period, with the exception of a very large estimate in 1995. The increase in abundance in the spring survey is due to at least two relatively large year-classes born in the late 1980's (mode at 21 cm since 1996).

Two research survey are available from Div 3O. The first one conducted in the spring, shows a systematic increase (more than 10 fold) in abundance from 1990 to 1996, with a sudden decline in abundance (to the pre-1991 level) in 1997. On the other hand, the fall survey indicates relative stability over the same period, with the exception of a very large estimate in 1995. The increase in abundance in the spring survey is due to at least two relatively large year-classes born in the late 1980's or early 1990's: the year classes can be tracked with some difficulty for about four years. Based on growth characteristics, these two year classes were considered to be different from the 1988 year-classes seen on Unit 1 and 2.

The survey do not appear to sample adequately fish <15 cm and fish > 25 cm. On first principle, small fish must have been there before they reached 15 cm when they are first sampled by the surveys, and the commercial fishery harvest primarily fish > 25 cm, which are thus present in Division 3O. The biomass estimates from the research surveys are therefore not related to the fishable biomass present in deep waters. They are probably estimating the recruiting year-classes during a short temporal time frame. These year-classes seem to migrate out of the "survey area" as they reach commercial size.

Conclusions:

1. The basis to provide advice on Division 3O redfish is very limited.
2. The research surveys are not estimating adequately the exploitable portion of the population; it is therefore impossible to even to estimate the minimum exploitation rate implied by the TAC based on survey results, as it was done in Unit 2 and 3.
3. We hypothesised that, since the pre-recruits seen on the spring surveys between 1991 and 1996 had reached the size at which they are much less vulnerable to the surveys, they probably had moved out of the surveyable part of Division 3O. **If this hypothesis is correct**, then the unknown exploitable biomass already present in the deeper parts of Division 3O has increased by the biomass of these pre-recruits (about 100,000 t). It was acknowledged that there were little direct evidence to support this hypothesis, but given the limited data available, it appeared the most plausible interpretation.
4. In the SSR, the current TAC (10,000 t) will be compared to the size of these recruiting year-classes that presumably were added to the fishable biomass. Given the highly hypothetical nature of this advice, no additional calculations (*i.e.* correcting for survey gear selectivity) were deemed justified.

2.4.1. Transcription of the discussion

Catches:

[RB] Why are catches so low in the 1997 in relation to 1996? **[ANSWER]** — [DB] We made several attempts, but the small fish protocol has forced closures. The only period when you find concentration of acceptable sized fish is October-December.

Catch Rates:

[DB] There is a different experience in Div. 3O fishery. There is a greater mixture of small fish with the big fish. The temperature regime has more to do in the success in Div. 3O than in other areas. We should be looking at the variability in surveys *vs.* temperature.

Finally, catch rates were lower and saw more small fish in 1996. There were bigger effort by smaller boat earlier in the year.

## 3. Other Items

### *3.1. The future of the redfish Zonal advisory Process [ZAP[1]]. [RH]*

1. The question was asked as to whether the advisory process on redfish should always be zonal, or should it be done zonally at regular intervals, with the reviews being done regionally in the intervening years. It was pointed by the chair that the zonal nature of the redfish advisory process was in response to a demand of FRCC to have it done as such, and that changes should only be done in consultation with them.
2. The pertinence of having the ZAP conducted annually was also questioned. There is a possibility that the Unit 2 survey will be conducted on a biannual basis, the amount of information in the intervening years may not justify full assessments of redfish. In Unit 1, given the fact that the fishery is closed, and that not significant biological changes are expected for several years, annual assessments are probably not required. Finally, given the biology of redfish, there are probably no compelling need to assess these stocks yearly. Discussion on this issue was deferred, and the question was asked to the zonal coordinator of the advisory process at headquarters[2].

### *3.2. The future of redfish assessment (re High priority project on redfish). [RH]*

A proposal made at last year's assessment meeting to hold one, perhaps two, workshops on "upgrading redfish assessment and management" received support and a draft agenda was agreed upon, but firm plans to implement the proposal have not been made. It was suggested that provision of funding be included in any proposal for 4th year funding for the redfish High Priority Project (HPP). It is important that the results of work funded through the HPP be evaluated and incorporated, where appropriate, into the assessment process and the management framework. Support for this proposal was reaffirmed, and the Chair indicated that he would bring this issue before the HPP Scientific committee (name?).

### *3.3. Future of industry surveys [RIS] and the implication of the Groundfish Enterprise Allocation Council [GEAC]. [DB]*

The Industry participants at the ZAP expressed concerns about the small amount of information that was available, especially for Unit 1, and they stressed the need to have additional information from Unit 2. A RIS[3] is already planned for Unit 2 in November, but nothing for Unit 1. Industry representatives mentioned that they were willing to commit 1 full vessel trip in

[1] Zonal Advisory Process.

[2] The frequency of the redfish ZAP will be dictated by the frequency at which regions will assess the redfish resources.

[3] Redfish Industry Surveys (*Français: Relevés de l'Industrie sur le Sébaste*).

Unit 1. They pointed the need for some guidance in from the part of DFO, and need a contact point at DFO, especially in the case of supra regional issues (like Unit1+2 redfish).

It was pointed out [RH] that there was not only a commitment to consider RIS as long term project (as opposed to 1 shot deal), but also a substantial commitment on technical matter (like data entry) since DFO did not have sufficient human resources to take on new projects.

## APPENDIX I - AGENDA
## *ORDRE DU JOUR*

### Zonal Redfish Assessments review
### *Revue zonale des évaluations de sébaste*

### Miramichi room, Gulf Fisheries Centre, Moncton
### *salle Miramichi, Centre des pêches du Golfe, Moncton*

| | | |
|---|---|---|
| Mot de bienvenue<br>Sébaste de l'Unité 1<br>Sébaste de l'Unité 2 | 97/10/14 13:00-18:00 | Greetings<br>Unit 1 Redfish |
| Sébaste de l'Unité 2 suite<br>Sébaste de l'Unité 3 | 97/10/15 09:00-12:00 | Unit 3 redfish |
| Sébaste de la Division 3O | 97/10/15 13:00-18:00 | Division 3O redfish |
| Corrections<br>Revue du Rapport final | 97/10/16 09:00-12:00 | Reruns<br>Final report review |
| Corrections<br>Revue du Rapport final | 97/10/16 13:00-16:00 | Reruns<br>Final report review |

## APPENDIX II - LIST OF PARTICIPANTS
## *LISTE DES PARTICIPANTS*

| | | |
|---|---|---|
| D. Gascon (Chair) | DFO/LAU | [DG] |
| I. Bénard | Madelipêche | [IB] |
| D. Bollivar | Seafreez Foods Inc. | [DB] |
| R. Bowering | DFO/NFL | [RB] |
| B. Branton | DFO/MAR | [BB] |
| A. Charles | FRCC | [TC] |
| P. Delaney | Madelipêche | [PD] |
| R. Halliday | DFO/MAR | [RH] |
| K. G. Lohnes | Clearwater Fine Foods Inc. | [KL] |
| B. Morin | DFO/LAU | [BM] |
| A. Petipas | Madelipêche | [AP] |
| D. Power | DFO/NFL | [DP] |

## APPENDIX III - List of working papers, research documents and stock status reports produced for and following the meeting
## Liste des documents de travail, des documents de recherche, et des rapports sur l'état des stocks préparé pour, ou à la suite de la réunion.

### *a) Working papers*
### *Documents de travail*

Branton, R. 1997: Update on the status of Unit 3 Redfish, 26p.

Morin, B. 1997 Unit 1 Redfish / Sébaste de l'Unité 1

Power, D. 1997. Unit 2 Redfish. 33p

Power, D. 1997. Division 3O Redfish, 13, p.

### *b) Research documents*
### *Documents de recherche*

Branton, R. 1997. Update on the status of Unit 3 Redfish: 1997. DFO Atl. Fish. Res. Doc. 97/103 .

Morin, B. and B. Bernier. 1997 The status of redfish Unit 1 (Gulf of St-Lawrence). DFO Atl. Fish. Res. Doc. 97/112 .

Power, D. and D. Orr. 1997. Status of Redfish in Unit 2 (Laurentian Channel Management Unit). DFO Atl. Fish. Res. Doc. 97/113.

Power, D. and D. Orr. 1997. Status of Redfish in Division 3O. DFO Atl. Fish. Res. Doc. 97/115.

### *c) Stock Status reports (SSR)*
### *Rapports sur l'état des stocks (RES)*

DFO Sciences, 1997. Status of Redfish Stocks in the Northwest Atlantic: Redfish in Units 1, 2, and 3, and in Division 3O. DFO Science, Stock Status Report A1-01, 19p.

## APPENDIX IV - Recommendations
## *Recommandations*

1. **Unit 2**: It was recommended to look at the catch rate series in a more disaggregated manner as to reflect more the experience of Industry.

## APPENDIX V - Later remarks about the redfish ZAP made by interested parties
***Remarques ultérieures sur le processus de revue zonale sur le sébaste faites par des parties intéressées.***

*a)* ***Approbation memorandum for the SSR by the Assistant Deputy Minister***
***Note d'approbation du RES par le sous ministre adjoint sciences***

Fisheries and Oceans / Pêches et Océans **MEMORANDUM** **NOTE DE SERVICE**

To / A: M. Henderson
Director - Fisheries Research Branch

From / De: L. S. Parsons
ADM - Science

Security Classification - Classification de sécurité: Unclassified/Non classifié
Our File - Notre référence:
Your File - Votre référence:
Date: OCT 24 1997

Subject / Objet: STOCK STATUS REPORT ON REDFISH

The zonal Stock Status Report on the Status of Redfish Stocks in the Northwest Atlantic is approved for release. The document is generally well-prepared and the major messages are clear. When the document is finalized, there are a number of suggestions which should be taken into consideration.

- The document continues the use of some terms which are widespread in the technical vocabulary of stock assessment and fisheries biology, but may not be in the vocabulary of many Departmental clients. Examples include:
  - geographic cline - page 1, paragraph 2
  - stratified-random surveys - page 5, paragraph 1; page 10, paragraph 3; page 17, paragraph 5
  - modes (in the statistical sense) - page 5, paragraph 3; page 10, paragraph 2
  - standardized (in the statistical sense) - page 5, paragraph 5; page 9, paragraph 3; page 17, paragraph 4
  - (minimum) exploitable biomass index - page 9, paragraph 5; page 11, paragraph 1
  - selectivity curves - page 9, paragraph 5
  - catchability (in the statistical sense) - page 14, paragraph 3; page 17, paragraph 5

- The Redfish Overview might benefit from partitioning of information with subheadings, for example:
  - Biology of Redfish - page 1, before paragraph beginning "Three species..."
  - Assessment and Management - page 2, before paragraph beginning "At present there are ..."
  - Special Concerns - page 2, before paragraph beginning "Because of their biology..."

Canada



- In some parts of the document, areas are referred to by geographic location (Southern Gulf of St. Lawrence, Flemish Cap, Browns Bank) whereas at other times NAFO units, such as 3Pad, 4Xo, are used. More clients might be reached if geographic place names were used whenever possible, rather than coded DFO or NAFO designations.

- It is usually not necessary to put references (e.g., Ni and Sandeman 1984 - page 2, paragraph 3) into SSRs, and the practice is discouraged in SSRs.

- There are a number of places where a negative statement is made, with a corresponding negative inference to be drawn. This can be confusing, or even misleading to readers, who are being told one of the things that a stock, fishery or management approach is not, but not what the thing is. When possible, sentences should be made into statements which are affirmative of a thing, because such sentences generally convey much more information. For example:
  - "Because each does not cover the entire area" (page 10, paragraph 3) could be "Because each covers only part of the entire area"
  - "biological sampling does not fully reflect the landings of small fish" (page 15, paragraph 1) could have several meanings, most likely "Small fish are under-represented in the biological samples".

- The paragraph at the end of page 14 contains important information. However, readers not experienced in stock assessment may find the writing to be too terse to follow easily.

Despite these editorial comments, the SSR is a good product, and I appreciate the efforts of those who prepared the document in such a short time after the Zonal RAP.

L. S. Parsons

c.c. Regional Directors - Science Branch
CSAS
[redacted]

## *b) Comments from the FRCC*
## *Commentaires du CCRH*

**1998 Conservation requirements for redfish Units 1, 2, 3 and 3O FRCC.97.R.7, November 1997, 23p.**

Page 3

*"Council feels that greater participation by scientists, industry, and other interested parties in the Regional Advisory Process (RAP) for redfish would be beneficial. An expended number of scientists (including non-redfish scientists) would broaden the discussion of assessment methodologies and results. Greater participation by industry, by the provinces, and by others is also important. To accomplish this, the RAP session must be fully publicised. In addition, the possibility of having the redfish RAP held together with a regional RAP, such as that of the Scotian Shelf - Bay of Fundy, as a way to facilitate more involvement by scientists and industry. It should be noted that in making these comments, the FRCC is <u>not</u> advocating moving away from the zonal assessment of redfish"*